

**MICROCAVITY SEMICONDUCTOR LASER COUPLED TO A WAVEGUIDE**

Abstract of the Disclosure

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High quality epitaxial layers of monocrystalline materials can be grown overlying monocrystalline substrates such as large silicon wafers by forming a compliant substrate for growing the monocrystalline layers. One way to achieve the formation of a compliant substrate includes first growing an accommodating buffer layer on a silicon wafer. The accommodating buffer layer is a layer of monocrystalline oxide spaced apart from the silicon wafer by an amorphous interface layer of silicon oxide. The amorphous interface layer dissipates strain and permits the growth of a high quality monocrystalline oxide accommodating buffer layer. The foregoing is utilized for a microcavity semiconductor laser coupled to a waveguide.